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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
NGUYEN, LUONG TRUNG	

ART UNIT	PAPER NUMBER
2622	

NOTIFICATION DATE	DELIVERY MODE
01/25/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/730,078

Applicant(s)

KITAGUCHI ET AL.

Examiner

LUONG T. NGUYEN

Art Unit

2622

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 November 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Terminal Disclaimer

1. The terminal disclaimer filed on 11/06/2007 has been reviewed and is accepted. The terminal disclaimer has been recorded.
2. Due to the filing of the terminal disclaimer, the rejection of double patenting has been removed. However, upon further consideration, a new non final office action sets forth below.

Claim Objections

3. Claim 5 is objected to because of the following informalities:

Claim 5 (line 5), "1/25 seconds" should be changed to --1/30 seconds--. Noted that the specification only discloses "the image acquisition time for one frame is normally 1/30 seconds".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
5. Claims 1-2, 5, 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshihara et al. (US 5,172,233) in view of Enomoto et al. (US 4,996,545).

Regarding claim 1, Yoshihara et al. discloses an apparatus for correcting a deviation of an imaging sensor of a digital camera in which an image of an object or a scene is formed on an image plane of the imaging sensor so that the imaging sensor outputs an image signal, comprising a rotation detecting unit (Position Sensitive Detector 52, Figure 8) which detects a quantity of rotation (degree and direction of camera shaking) of the digital camera causing a deviation of the imaging sensor from a reference position (initial position) to occur (column 6, lines 29-32).

Yoshihara et al. fails to specifically disclose the rotation detecting unit including an acceleration sensor outputting a signal indicative of an acceleration of the digital camera and a magnetic sensor outputting a signal indicative of a magnetic field of the digital camera. However, Enomoto et al. discloses an apparatus for correcting a blurred images due to camera-shake in a camera using an accelerator sensor which includes a magnetic sensor 7 (figure 1, column 2, lines 3-47; column 6, lines 9-48). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Yoshihara et al. by the teaching of Enomoto et al. in order to provide a blurred image correcting apparatus which can correct a blurred image caused by a deviation of a camera due to camera shake (column 1, lines 55-60).

Regarding claim 2, Yoshihara et al. discloses:

a target vector calculating unit (deviation detector 54x and 54y, figure 8) which calculates a target vector, the target vector describing a magnitude and a direction of an inverse

movement (D_x and D_y , figure 8) of the imaging sensor (CCD 3, figure 8) needed to reach the reference position and cancel the deviation (the position of the optical axis of the CCD 3 is corrected so as to reduce the position deviation to zero, column 6, lines 35-39);

a translation detecting unit (since Yoshihara et al. discloses the PSD 53 detects degree and direction of camera shaking and have to translate the signals (Y_1 , Y_2 , X_1 and X_2) to X and Y coordinates system components data, a translation detecting unit is inherently included in Yoshihara et al.), connected to the target vector calculating unit, which detects a quantity of translation of the digital camera causing the deviation of the imaging sensor from the reference position to occur;

a translation quantity calculating unit (53x and 53y receive the coordinates system data from PSD 52 and calculate a changes that are signals C_x and C_y , column 4, lines 45-50) which calculates a change of the quantity of translation of the imaging sensor based on the quantity of translation detected by the translation detecting unit, wherein the target vector calculating unit calculates the target vector based on a change of a positional angle of the imaging sensor and on the change of the quantity of translation calculated by the translation quantity calculating unit, and wherein the change of the positional angle of the imaging sensor is calculated based on the quantity of rotation detected by the rotation detecting unit (Figure 8).

Regarding claim 5, Yoshihara et al. discloses wherein the detection of the quantity of rotation, the calculation of the target vector, and a movement of the imaging sensor are executed within an image acquisition time for a single frame of the image signal as discussed in claim 1.

It is well known in the art the standard NTSC video camera system has a frame rate 1/30 second. For this reason, it would have been obvious to see the detection of the quantity of rotation, the calculation target vector and the movement of the imaging sensor are executed less than 1/30 seconds for incorporating with standard NTSC system.

Regarding claims 10-11, claims 10-11 are method claims of apparatus claims 1-2, respectively; therefore, see Examiner's comments regarding claims 1-2.

6. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshihara et al. (US 5,172,233) in view of Enomoto et al. (US 4,996,545) further in view of Kawakami et al. (US 4,780,739).

Regarding claim 3, Yoshihara et al. discloses wherein the rotation detecting unit (PSD 52) includes a set of acceleration sensors (two dimensional sensor array P11-P44, figure 9) provided to output signals indicative of accelerations (degrees and direction) of the digital camera along an X axis, a Y axis of a world coordinate system, and a set of magnetic sensors (two dimensional sensor array P11-P44) provided to output signals indicative of magnetic fields (center of gravity) of the digital camera along the X axis, the Y axis of the two dimensional coordinate system. However, Yoshihara et al. does not show the rotation detecting unit can output signals indicative of camera along the three dimensional coordinate system instead of two dimensional coordinate system.

The Kawakami reference discloses in figures 1 and 6, an imaging device has detection means for detecting an image vibration of the imaging device and drive means for driving at least one of a photoelectric conversion device for cancelling vibration. The image displacement detecting circuit 8b' can output signals indicative of camera along x-direction, y-direction, and z-direction and adjust the image sensor (photo-electric element 2) for canceling the vibration as shown in figure 6 (column 5, lines 7-25). The Kawakami reference is an evidence that one of ordinary skill in the art at the time the invention was made to see more advantages for using of three dimensional world coordinate system to correct a deviation of an image sensor of a digital camera which caused by hand shaking so that the adjustment is more accurate than the two dimensional coordinate system in the case when the deviation occurred in Z axis direction. For that reason, it would have been obvious to see the rotation detecting unit outputs the signals indicative of the digital camera along the X axis, the Y axis and Z axis of the world coordinate system disclosed by Yoshihara.

Regarding claim 4, see Examiner's comment regarding claim 3.

7. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshihara et al. (US 5,172,233) in view of Enomoto et al. (US 4,996,545) further in view of Namerikawa et al. (US 6,089,090).

Regarding application claims 6-7, Yoshihara et al. and Enomoto et al. fail to specifically disclose wherein the quantity of rotation represents a rotation caused by a shaking motion of the digital camera. However, Namerikawa et al. teaches that a gyro sensor, which detects the angular

velocity of rotation (quantity of rotation), is used for picture blurring-preventive systems of VTR camera (column 1, lines 5 – 55). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Yoshihara et al. and Enomoto et al. by the teaching of Namerikawa et al. in order to detect the angular velocity of rotation.

Regarding application claim 8, Yoshihara et al. and Enomoto et al. fail to specifically disclose wherein the rotation detecting unit comprises a gyro. However, Namerikawa et al. teaches that a gyro sensor, which detects the angular velocity of rotation is used for picture blurring-preventive systems of VTR camera (column 1, lines 5 – 55). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Yoshihara et al. and Enomoto et al. by the teaching of Namerikawa et al. in order to detect the angular velocity of rotation.

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshihara et al. (US 5,172,233) in view of Enomoto et al. (US 4,996,545) further in view of Hasegawa (US 5,900,927).

Regarding application claim 9, Yoshihara et al. and Enomoto et al. fail to specifically disclose wherein the translation detecting unit comprises a range finder. However, Hasegawa teaches a range finder is mounted on a camera for measuring the distance to a subject (column 2, lines 20-27). Therefore, it would have been obvious to one of ordinary skill in the art at the time

the invention was made to modify the device in Yoshihara et al. and Enomoto et al. fail to specifically by the teaching of Hasegawa in order to measure distance to a subject.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUONG T. NGUYEN whose telephone number is (571) 272-7315. The examiner can normally be reached on 7:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DAVID L. OMETZ can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



LN
01/20/08

**LUONG T. NGUYEN
PATENT EXAMINER**